PEST CONTROL DEVICE

The present invention relates to the control of crawling pests, e.g., crawling insects, arachnids, wood lice, millipedes and centipedes, but especially cockroaches. More particularly the invention is concerned with a localized placement device for the control of such pests.

PRIOR ART

Crawling pests have conventionally been controlled by applying a pest control agent to an area, usually by spraying, so that when the target pest crawls over that area it acquires a lethal dose of the agent. However, in this method, humans and non-target creatures can contact the pest control agent, and contamination of foodstuffs or surfaces may occur which could be harmful. Furthermore, the target pest may not stay on a treated area long enough in order to acquire a lethal dose, and this may result in the development of repellency, or resistance, to the agent concerned.

U.S. Pat. No. 4,970,822 describes a contact poison delivery system for cockroaches comprising a tunnel structure having two vertical walls and two horizontal walls defining a poison containment area. An insecticide is applied to the internal horizontal surfaces so that a cockroach walking through the tunnel and contacting those surfaces receives a dose of insecticide. However, the embodiments described are suitable only for the control of cockroaches of a particular size, and we have found that the construction of the device does not allow the insecticide to be transferred even to an insect of appropriate size in a particularly efficient manner. In addition, insecticide is transferred to the legs and feet of the cockroach, and some of this will naturally be deposited on any surface or foodstuffs that it subsequently crosses, resulting in undesirable further contamination. Such contamination is likely to be at sub-lethal levels and, if encountered by other pests, might contribute to the development of resistance. In the region of the device, it could also act to repel further pests from entering the device.

DESCRIPTION

The present invention provides a localised placement device for the control of crawling pests, particularly insects, and especially cockroaches, which reduces or overcomes some of the disadvantages of the prior art.

In one aspect, the present invention provides a device for the control of crawling pests, said device comprising a tunnel into which a crawling pest may enter, characterised in that the interior surface of the tunnel ceiling, or a portion thereof, is treated with a suitable pest control agent, and in that the gap between floor and ceiling in the treated area decreases from at least one edge of the treated area; such that a pest entering the device may encounter said decreasing gap and receive upon contact with the treated surface a dose of the agent topically on its upper parts.

Where the target pest is an insect, the dose is received topically on its antennae, dorsal surfaces of the thorax, abdomen or head.

The floor of the tunnel is preferably formed from a thin layer of a material that does not represent a significant barrier for the pests to cross and enter the device.

The floor of the tunnel is preferably flat, in which case the treated area of the ceiling desirably slopes from opposite edges towards the floor in the direction of the interior of the device to provide the reduction in the floor-to-ceiling gap. For the control of most crawling insects, especially

cockroaches, the floor-to-ceiling gap preferably decreases from about 10 mm to about 2 mm, desirably towards the interior of the device. This could alternatively be achieved by means of a flat ceiling and a sloping floor, but this presents a change in environment that is detectable by and may therefore deter the target pests. When a sloping ceiling is used, the change in environment is only detected once the ceiling has been contacted, i.e., once the dose of the pest control agent has been transferred.

In comparison with a device in which the floor and ceiling are parallel, the reducing floor-to-ceiling gap enables a far wider range of sizes of crawling pest to be accommodated and controlled. In addition, it exploits the inherent investigative nature of certain pests, especially cockroaches, which have a propensity to explore small gaps and crevices. To encourage such behavior, and thus increase the contact between the pest and the treated area, at least a small floor-to-ceiling gap is preferably maintained over all or substantially all of the treated area.

A path may be provided for the pest to enter the device at one end and exit at the other, having contacted the treated portion, but this is not essential. Such a path may be imposed on the pest by means of one-way devices at suitable points, particularly one-way entrance and exit doors.

The device of the present invention is not a harbourage or trap, and individual pests generally remain in it for a very short time, typically less than 5 seconds, leaving to die remote from the device once contact with the pest control agent has occurred. In this way the pest control agent may with further advantage be transferred back to the pests' natural harborage or to other pests. Although there may be a consequential transfer of the pest control agent to the environment, this will generally be less than that from known devices in which application is made to the feet or legs.

The tunnel entrance is preferably rectangular in cross-section.

The ceiling is preferably convex. It is also preferably deformable or movable on contact by the target pest, thereby improving or prolonging the contact between the pest and the pest control agent. To this end, a compressible padding material may be located between the interior and exterior surfaces of the ceiling adjacent to the movable/deformable surface. Alternatively, the compressible padding may be replaced by a supporting structure that gives some flexibility to the treated portion of the ceiling. In another embodiment, the treated portion may be a light, deformable, movable structure that is suspended from the ceiling, and is not in contact with the floor of the device.

In a further form of construction, contact with the ceiling, or a structure suspended from it, by the target pest may be made to act as a trigger for a second mechanism to dose the insect.

The treated interior ceiling of the device is desirably removable to enable it to be replenished with pest control agent or replaced.

User exposure to the pest control agent may be limited by the device further comprising, at both ends of the tunnel, a portion of the interior surface of the ceiling which is not treated with the agent. Alternatively, the device may be provided with suitable baffles at each entrance, which should not of course significantly obstruct the target pests from entering the device.

The construction of the device is preferably such that two or more may be linked to form a modular structure.

The device may also beneficially incorporate features attractive to the target pest, for example a dark interior,